Drinking goals and their association with treatment retention and treatment outcomes among clients in outpatient alcohol treatment

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Abstract: Background: Few studies have compared characteristics of clients entering alcohol treatment who differ in their drinking goal preferences or have investigated the relevance of drinking goals as a predictor of treatment outcomes. Objectives: To investigate associations between baseline drinking goal preferences and client characteristics as well as treatment retention and outcomes among clients in outpatient alcohol treatment. Methods: Secondary data analyses on a longitudinal multicenter study investigating the effectiveness of outpatient alcohol treatment in Switzerland among 805 clients. Assessments were conducted at treatment admission, discharge, and at 6- and 12-month follow ups. At-risk drinking was assessed through the alcohol use disorders identification test. Treatment retention was defined as regular discharge with or without transition into another institution. Results: Clients aiming to abstain from drinking were more likely to be in retreatment, to be assigned to treatment by a health institution, to have no at-risk alcohol use, and to be already alcohol abstinent at the time of admission relative to clients who aimed to control their drinking. Clients without at-risk alcohol use at admission showed higher treatment retention when aiming for controlled drinking than for abstinence, while there was no difference in treatment retention among clients with at-risk use. Clients with at-risk use at admission were more likely to reach not-at-risk alcohol use status when aiming for alcohol abstinence than for controlled drinking. Conclusions: Drinking goals are associated with variables of alcohol use and treatment assignment. They have different effects on treatment retention and treatment outcomes according to alcohol use at the time of admission.

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Abstract

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Introduction

Only a minority of individuals suffering from alcohol use disorders seek professional help (Rehm et al., 2015). Increasing the availability of effective treatment interventions for people with alcohol use disorders could reduce alcohol-attributable mortality (Dawson, Grant, Stinson, & Chou, 2006; Rehm et al., 2014). This raises the question of how to increase adequate treatment for people with alcohol use disorders in early stages. Low-threshold as well as more individualized and diversified treatments could contribute to this objective (Bühringer & Rumpf, 2015).

It has been controversially discussed for years whether individuals seeking treatment for alcohol use disorders should always be advised to abstain or whether some clients should be encouraged to control or reduce their drinking.

Previous studies have shown that recovery of individuals with severe alcohol dependence predominantly involved abstinence, while recovery of individuals who have not been severely dependent, predominantly involved controlled drinking (Dawson et al., 2005; Sobell & Sobell, 1995). Other studies showed that clients' beliefs about the need for abstinence and the possibility of successfully reduce drinking are also important in determining treatment outcomes for each goal (Rosenberg, 1993). If given a choice, many clients would select the goal that best fits their circumstances and acceptance of a client's choice is likely to result in a more successful outcome (Adamson & Sellman, 2001). This is also supported by several psychological theories, such as Social Cognitive Theory (Bandura, 2001) or the Self-determination Theory (Ryan & Deci, 2006) which stress the importance of autonomous regulation.

A meta-analysis of 17 studies on the efficacy of behavioural self-control training for problem drinking, the most widely applied intervention to support controlled drinking, revealed that this approach was at least as effective as abstinence-oriented treatment for both alcohol-dependent and problem-drinking subjects (Walters, 2000). The United Kingdom Alcohol

Treatment Trial (UKATT, Godfrey & Team, 2005) compared two intervention approaches – Motivational Enhancement Therapy and Social Behaviour Network Therapy. Patients were asked whether or not they preferred to aim for abstinence as a goal of treatment. Substantial reductions in alcohol consumption were achieved in both intervention approaches. However, the patients maintaining abstinence for a longer time period only contributed marginally to this effect (Adamson, Heather, Morton, & Raistrick, 2010; Heather, Adamson, Raistrick, & Slegg, 2010). Furthermore, clients preferring abstinence differed from clients who expressed a preference for non-abstinence. Multivariate analyses revealed that the former were more likely to be female, to drink more heavily but less frequently, to have been detoxified more often, and to report less social support for drinking. Although scientific evidence and health authorities encourage the consideration of clients' preferences in the treatment process, few studies have compared characteristics of clients entering treatment who naturally choose abstinence or not. Nor have studies investigated the relevance of drinking goals as predictor of treatment outcomes. Secondary data analysis of the above-mentioned UKATT (Godfrey & Team, 2005) provided the first results (Adamson et al., 2010; Heather et al., 2010), however further studies from other countries and settings are required to extend the body of knowledge on this topic. Within the UKATT, only two specific treatment modalities were scheduled and the number of sessions was fixed. This does not reflect usual alcohol treatment in most countries, which is typically characterised by a greater diversity of treatment modalities and large variations in the number of treatment sessions provided. Furthermore, alcohol use among clients entering alcohol treatment is very different, including a substantial proportion showing not at-risk drinking or abstinence (Cochran, Stitzer, Nunes, Hu, & Campbell, 2014; Gueorguieva et al., 2012; Haug & Schaub, submitted). The interaction of baseline alcohol use with individual drinking goal preferences and its association with treatment retention and outcome have not been examined yet but might be of importance within a personalized

medicine approach, which could be used to guide decisions about appropriate treatment strategies for individual patients.

Programs for controlled drinking are widespread in Switzerland, particularly in outpatient treatment institutions (Klingemann & Rosenberg, 2009). However, treatment dropout rates are high in outpatient alcohol treatment and represent a major barrier to successful treatment outcomes (Brorson, Ajo Arnevik, Rand-Hendriksen, & Duckert, 2013; Haug & Schaub, submitted). Using data from a naturalistic, longitudinal multi-centre trial in Switzerland, the present study investigated associations of drinking goal preferences, baseline alcohol use and client characteristics with treatment retention and treatment outcome in individuals who naturally prefer abstinence, controlled drinking or were undecided on a drinking goal when entering outpatient alcohol treatment.

Methods

Study design and main outcome

Secondary data analyses were conducted on an available data set from a naturalistic, longitudinal multi-centre study on the effectiveness of outpatient alcohol treatment in Switzerland (Haug & Schaub, submitted). Assessments were conducted at treatment admission, treatment discharge, as well as at 6- and 12- month follow-ups. Out of 858 clients participating in the study, 311 (36.2%) were re-assessed at the end of treatment, 532 (62.0%) at 6-month follow-up and 512 (59.7%) at 12-month follow-up.

A detailed description on the methodology of the study and its results is published elsewhere (Haug & Schaub, submitted). The mean duration of treatment was 225.8 days (*SD* = 185.9) with a mean of 9.7 (*SD* = 7.9) individual and 0.8 (*SD* = 3.3) group sessions provided. All of the participating institutions utilized motivational interviewing approaches (i.e., the pros and cons of alcohol abstinence and alcohol reduction; strategies for goal achievements) (Miller &

Rollnick, 2013), the principles of cognitive behavioural therapy (identifying risk situations, situational analysis, relapse prevention), and behavioural self-management (drinking diary). All participating outpatient alcohol treatment centres provided information and specific interventions for controlled drinking, allowing controlled drinking as an outcome goal regardless of severity of dependence (Klingemann & Rosenberg, 2009). The study showed that 45% of all clients with problem drinking at the beginning of treatment showed non-problem drinking at the end of treatment and 41% and 43% showed non-problem drinking at 6- and 12-month follow-ups, respectively. Among initially non-problem drinking clients, some of whom received outpatient aftercare following inpatient detoxification, 87% remained non-problem drinkers at the end of treatment and 80% remained non-problem drinkers at the 6- and 12-month follow-ups. Study approval was obtained by the Local Ethics Committee of the Canton of Zurich, Switzerland (KEK-StV-Nr. 05/11). All study participants gave written informed consent.

Participants

Study participants were recruited in 5 Swiss outpatient alcohol treatment centres in the greater areas of Berne (Stiftung Berner Gesundheit, Blaues Kreuz Bern), Zurich (Zürcher Fachstelle für Alkoholprobleme), Aarau (Aargauische Stiftung Suchthilfe), and Baden (Beratungszentrum Bezirk Baden). Clients who entered treatment between March 2011 and November 2012 and who finished treatment before December 2013 were invited for study participation if the following inclusion criteria were met (1) their own alcohol consumption was the main reason for treatment, and (2) at least 3 counselling sessions were provided. Clients were excluded from study participation for one or more of the following: (1) cognitive impairments or language difficulties that did not allow them to complete the questionnaire assessments, (2) representation by a legal guardian, or (3) acute emergency.

The flow of study participants is displayed in Figure 1. Within the study period, a total of 2,513 clients entered treatment due to their own alcohol consumption. Of these clients, 340 (13.5%) were excluded due to one or more of the above mentioned exclusion criteria. In addition, less than 3 counselling sessions were provided for 925 clients (36.8%); thus, 1,248 clients were eligible for study participation. Of these, 1009 (80.8%) provided informed consent. A total of 805 clients who finished treatment before December 2013 and provided data on their individual drinking goal at treatment admission represent the sample for the analyses within the present study.

Measures and instruments

The following data were assessed at treatment admission by the counsellor within the routinely applied Information Network on Addiction Care and Therapy in Switzerland: (1) sex, (2) age, (3) nationality, (4) educational level, (5) means of subsistence, (6) partnership, (7) children living in the household, (8) treatment subsequent to prior alcohol detoxification, (9) referring person or institution, and (10) new admission or readmission.

Within this system, the type of treatment completion was also assessed by the counsellor using differing response options: (1) regular discharge without transition into another institution, (2) regular discharge with transition into another institution, (3) change of residence, (4) hospitalisation, (5) imprisonment, (6) loss of contact, (7) discontinuation of treatment, and (8) death. Participants were assigned to the group with regular treatment discharge, also named treatment retention, if their counsellor indicated response options (1) or (2), while response options (4) thru (8) were considered indicators of an irregular treatment discharge.

The following data were assessed repeatedly from the clients` perspective at the beginning and end of treatment as well as at 6- and 12-month follow-ups: (1) general health status, (2) life satisfaction, (3) drinking goal, (4) alcohol use, (5) abstinence from alcohol in the previous

30 days, (6) substance use except for alcohol, and (7) use of psychotherapeutic or psychiatric treatment in the previous 6 months.

Self-rated general health (Idler & Benyamini, 1997) was assessed by the item "Would you say your health in general is: (1) excellent, (2) very good, (3) good, (4) fair, or (5) poor?"

Subjective quality of life was assessed by the Questions on Life Satisfaction (Heinrich & Herschbach, 2000), which covers eight areas of life that are usually relevant for everyone in the Western world to some degree: friends/acquaintances, leisure time/hobbies, health, income/financial security, occupation/work, housing/living conditions, family life/children, and partner relationship/sexuality. The participants rated their satisfaction with each area on a 5-point scale from "not satisfied" to "very satisfied". The total score, which is the sum of these eight scores, ranged from 8 to 40. The psychometric evaluation of the Questions on Life Satisfaction demonstrated a high level of internal consistency, adequate sensitivity, and construct validity (Heinrich & Herschbach, 2000).

Drinking goal was assessed by the item "Which is currently your personal goal concerning alcohol consumption" with the following response options: (1) I want to be abstinent, (2) I only want to drink a certain quantity of alcohol, (3) I have not decided yet, and (4) I do not want to restrict myself.

Alcohol consumption within the previous 30 days was assessed using the Short Form of the Alcohol Use Disorders Identification Test (AUDIT-C) (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998). Pictures were used to illustrate the quantity of a standard drink, which corresponded to 12 to 14 grams of pure alcohol. Based on a recent validation study on a large German sample, a cut-off point of ≥ 4 for women and ≥ 5 for men was used to define at-risk alcohol use (Rumpf, Meyer, Bischof, Freyer-Adam, & John, 2013). Use of other substances except for alcohol was assessed by the question "Which substances did you use within the previous 30 days" and the following multiple response options (1) tobacco, (2) tranquilizer,

(3) analgesics, (4) cannabis, (5) amphetamines type stimulants, (6) cocaine, (7) heroine, and (8) substitution medications (e.g., methadone, buprenorphine).

Statistical analyses

To examine associations between individual drinking goals (abstinence, controlled drinking, or undecided) at treatment admission and client characteristics, separate multinomial logistic regression analyses were preformed initially (subsequently referred to as univariate analyses) to evaluate the ability of each client characteristic to predict drinking goal, while controlling for treatment centre. After examining these univariate predictors, multivariate prediction models were developed. As suggested by Hosmer, Lemeshow, and Sturdivant (2013), variable selection consisted of the following steps: (1) Significant predictors ($p < .05$) from the univariate analyses were entered into the preliminary multivariate model. (2) Variables that were non-significant at $p > .05$ were removed one at a time and those with the highest p-values were removed first (backward selection). (3) To account for suppressor effects, the resulting model was verified by tentatively adding the aforementioned excluded variables separately to the regression model. Only variables significant at $p < .05$ were retained in the final model (forward selection).

Binary logistic regression analyses were used to compare treatment retention and treatment outcome between clients initially aiming at abstinence vs. those aiming at controlled drinking. Logistic regression analyses were conducted, with the indicators of a positive outcome (regular treatment discharge, not at-risk alcohol use at 6- and 12-month follow-ups) entered as the dependent variable. As alcohol use at baseline was very heterogeneous in this outpatient sample and was reported to be highly associated with treatment outcome (Adamson, Sellman, & Frampton, 2009), separate analyses for clients with and without at-risk alcohol use at baseline were preformed. In order to examine the impact of known covariates on the variable drinking goal, which resulted from the aforementioned comparison of baseline characteristics

of clients by drinking goal, drinking goal was entered into the regression models along with the treatment centre and client characteristics derived from the multivariate model which were found to significantly co-vary with baseline drinking goal preference. Due to small cell counts, we did not consider the 80 clients who indicated that they were undecided or unrestricted in their drinking goal within the analyses on the associations of the drinking goal and treatment retention as well as in the analyses on the associations of the drinking goal and treatment outcome. These analyses were conducted separately for clients with and without at-risk alcohol use at admission. All data were analysed using SPSS, version 22. Two-tailed statistical tests with significance levels at $p < .05$ were used.

Results

Drinking goals and their associations with client characteristics

Out of the 805 study participants who provided data on their individual drinking goal at treatment admission, 350 (43.5%) indicated that they aimed for abstinence, 375 (46.6%) indicated that they aimed for controlled drinking, 72 (8.9%) indicated that they were undecided, and 8 (1.0%) indicated that they did not want to restrict themselves. Due to small cell counts, we did not consider the 8 clients of the latter category for the analyses on associations between individual drinking goals and client characteristics. Table 1 shows client characteristics by drinking goal and univariate associations of client characteristics and drinking goals using multinomial logistic regression analyses.

The final multivariate model ($R^2 = .32$) showed that clients favouring controlled drinking compared to abstinence were more likely to be admitted for the first time to a treatment centre (OR = 2.09, 95%-CI = 1.38-3.16, p < .01) and to show at-risk alcohol use (OR = 1.85, 95% CI = 1.15-2.98, p = .01). Choosing controlled drinking as a goal instead of abstinence was less likely for clients who abstained from alcohol in the previous 30 days (OR = 0.11, 95%-CI =

0.06-0.19, p < .01) and for clients who were assigned to treatment by a health institution (OR = 0.56, 95%-CI = 0.36-0.88, p = .01, reference category: assigned by own initiative). Clients who were undecided on their drinking goal were more likely admitted for the first time at a treatment centre compared to those aiming for abstinence (OR = 2.50, 95%-CI = 1.24-5.04, p = .01). Clients who were undecided on their drinking goal were also less likely to be alcohol abstinent in the previous 30 days (OR = 0.30, 95%-CI = 0.13-0.67, p < .01) and were less likely assigned to treatment by their partner, family members, or friends (OR = 0.25, 95%-CI = 0.08-0.79, p = .02, reference category: assigned by own initiative) or by the justice system (OR = 0.26, 95%-CI = 0.07-0.94, p = .04, reference category: assigned by own initiative).

Drinking goals and their associations with regular treatment discharge

For clients whose alcohol use was not at-risk at baseline, the binary logistic regression analysis showed higher odds for regular treatment discharge if they had a controlled drinking goal as opposed to those with an abstinence goal (OR = 4.25, 95%-CI = 1.58-11.44, $p < .01$), when controlling for treatment centre, treatment assignment, treatment admission, and alcohol abstinence in the previous 30 days. For clients whose alcohol use was at-risk at baseline, no difference in the odds of a regular treatment discharge was obtained by treatment goal (OR = 0.89, 95%-CI = 0.57-1.39, p = .61). The raw percentages, not controlling for covariates, of clients with regular treatment discharge by treatment goal and alcohol are displayed in Figure 2.

Drinking goals and their associations with treatment outcomes

For clients whose alcohol use was not at-risk at baseline, the binary logistic regression analysis showed no difference in the odds of a positive treatment outcome (alcohol use not at-risk) between clients aiming for abstinence and those aiming for controlled drinking (6-month

follow-up: OR = 1.35, 95%-CI = 0.36-5.00, $p = .66$; 12-month follow-up: OR = 0.40, 95%-CI = 0.10-1.66, $p = .21$), when controlling for treatment centre, treatment assignment, treatment admission, and alcohol abstinence in the previous 30 days.

For clients with at-risk alcohol use at baseline, the odds of a positive treatment outcome (not at-risk alcohol use) was lower among clients aiming for controlled drinking than in those aiming for abstinence (6-month follow-up: OR = 0.25, 95%-CI = 0.14-0.43, $p < .01$; 12-month follow-up: OR = 0.34, 95%-CI = 0.19-0.60, $p < .01$). The raw percentages, not controlling for covariates, of clients with positive treatment outcome by baseline treatment goal and alcohol use are displayed in Figure 2.

Discussion

The aim of the present study was to investigate associations between drinking goal preferences (abstinence, controlled drinking, undecided on a drinking goal) and client characteristics, treatment retention, and treatment outcome, in individuals entering outpatient alcohol treatment. The study revealed three main findings: (1) clients aiming at abstinence were more likely to be in re-treatment, to be assigned to treatment by a health institution, not to show at-risk alcohol use and to be already alcohol abstinent at admission compared to those whose treatment goal was to control their drinking. (2) Clients without at-risk use at admission showed higher treatment retention when aiming at controlled drinking than at abstinence, while there was no difference in treatment retention among clients with at-risk use by drinking goal (3). Clients with at-risk use at admission were more likely to reach not at-risk alcohol use when aiming for alcohol abstinence rather than controlled drinking, while there was no difference in treatment outcome for clients without at-risk use at admission by drinking goal.

When discussing the differences in client characteristics by drinking goal, the outpatient treatment setting and the specific eligibility criteria for this pragmatic, naturalistic trial should

be taken into consideration. While previous studies on this topic exclusively focused on patients with present alcohol use disorders (Adamson & Sellman, 2001; Heather et al., 2010; Pachman, Foy, & Van Erd, 1978) clients in our study were more heterogeneous, including those without alcohol use due to prior detoxification at another institution, as well as clients who reduced their alcohol use prior to treatment admission to a non-hazardous level. Consistent with Heather et al. (2010), our univariate analysis shows that clients with prior detoxification or withdrawal treatment are more likely to choose abstinence as treatment goal. However, within our multivariate analyses associated variables like alcohol use and treatment assignment by a health institution showed a higher impact on goal preference. The multivariate analyses comparing the clients aiming at abstinence and those undecided show largely similar results as the comparison of goal abstainers to those with the goal of controlled drinking. Those who were undecided for a drinking goal were more likely to be admitted for the first time to a treatment centre and less likely to abstain from alcohol in the 30 days prior to admission. Thus, these clients seem to be more comparable to those aiming for controlled drinking as a goal than those aiming for abstinence.

Concerning treatment retention, the results of this study indicate that aiming for controlled drinking might be a beneficial strategy for treatment completion in outpatients who had not consumed alcohol, or only within low-risk limits, at admission. A previous study with randomized assignment to an abstinence-oriented treatment or a treatment aiming for controlled drinking (Pomerleau, Pertschuk, Adkins, & Brady, 1978), as well as a naturalistic study from the Netherlands (Schippers & Nelissen, 2006), showed similar results with higher treatment retention in treatments aiming for controlled drinking as an outcome goal. A possible explanation is that abstinence presents a high barrier for many clients, particularly after withdrawal treatment, and not achieving this goal might result in lower motivation for treatment, less satisfaction with the changes achieved, shame, and finally, treatment dropout.

Consistent with previous studies (e.g., Adamson et al., 2010; Hodgins, Leigh, Milne, & Gerrish, 1997; Meyer, Wapp, Strik, & Moggi, 2014), clients with at-risk alcohol consumption choosing abstinence showed higher rates of successful treatment outcomes at both follow-up assessments. This difference also remained significant, when controlling for baseline differences between the two goal groups. A possible explanation for the better treatment outcomes in the abstinence goal group, which was already discussed in (Adamson et al., 2010) and supported by data from (Heather et al., 2010), is greater motivation to change drinking behaviour in those with abstinence as a goal than those with the goal of controlled drinking.

Some results of this study might have implications for the provision and tailoring of outpatient alcohol treatment. First, considering the higher dropout rates among clients aiming for abstinence and drinking within low-risk limits, counsellors should pay particular attention to the therapeutic relationship, avoiding shame in case of a relapse, or alternatively consider a modification to the drinking goal. Second, considering the better treatment outcome of at-risk drinkers aiming for abstinence than those aiming for controlled drinking, undecided goal clients who are at-risk should be advised to abstain. Third, among clients with at-risk alcohol use behaviour who aim for controlled drinking, the counsellor should pay particular attention to the maintenance of motivation and the self-efficacy of the client to achieve his or her individual drinking goal.

Several limitations have to be mentioned with regard to this study. First, not all potential predictors of outcomes and covariates of drinking goals identified in previous studies could be considered, e.g., readiness to change or social support for drinking (Adamson et al., 2009; Heather et al., 2010). Second, no causal conclusions can be derived from the reported associations and it is possible that the associations might be influenced by further moderating variables. Third, the results may be valid only for outpatient alcohol counselling in countries, where controlled drinking is as widespread as it is in Switzerland (Klingemann & Rosenberg,

2009). Fourth, the outcome data concerning alcohol use were self-reported and not measured or verified by biochemical markers of alcohol use. Fifth, beyond alcohol use, we did not assess other indicators of the severity of alcohol use disorders.

In conclusion, this study shows that drinking goals are highly associated with variables of alcohol use and treatment assignment and that drinking goals show different effects on treatment retention and outcomes by alcohol use at the time of treatment admission. The results suggest that treatment retention and outcomes might be improved by tailoring alcohol treatment according to the patient's drinking behaviour at baseline and drinking goal as described in the paragraph above on implications for the provision of outpatient alcohol treatment. However, further studies testing the associations of drinking goals and treatment outcomes by baseline alcohol use or severity of dependence are necessary and interventional studies are required to test the efficacy of such a personalized medicine approach.

Conflict of interest

The authors declare that they have no conflicts of interest regarding this study.

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Table 1: Client characteristics by drinking goal and comparison of client characteristics by drinking goal using univariate multinomial logistic regression models, controlling for treatment site. Values are numbers, unless otherwise specified.

	Abstinence (n=350)	**Controlled drinking (n=375)**	**Undecided (n=72)**	**Abstinence vs. Controlled drinking OR (95% CI)**	**Abstinence vs. Undecided OR (95% CI)**
Sex					
Male	225 (64.3%)	256 (68.3%)	46 (63.9%)	1.19 (0.87-1.62)	0.99 (0.58-1.69)
Female *(Ref.)*	125 (35.7%)	119 (31.7%)	26 (36.1%)		
Age in years[a], *M (SD)*	46.8 (13.1)	43.8 (11.7)	43.4 (11.0)	0.98 (0.97-0.99)**	0.98 (0.96-1.00)
Nationality[b]					
Swiss	291 (83.9%)	334 (90.0%)	67 (93.1%)	1.72 (1.10-2.69)*	2.90 (1.11-7.58)*
Other *(Ref.)*	56 (16.1%)	37 (10.0%)	5 (6.9%)		
Educational level[c]					
Lower educational level	45 (16.2%)	48 (15.9%)	7 (11.5%)	0.79 (0.45-1.36)	0.48 (0.18-1.29)
Medium educational level	181 (65.1%)	184 (60.9%)	38 (62.3%)	0.77 (0.50-1.17)	0.70 (0.35-1.38)
Higher educational level *(Ref.)*	52 (18.7%)	70 (23.2%)	16 (26.2%)		
Means of subsistence[d]					
Own income	169 (50.3%)	238 (64.0%)	37 (51.4%)	1.18 (0.64-2.16)	0.63 (0.26-1.54)
Savings, pension	66 (19.6%)	43 (11.6%)	12 (16.7%)	0.55 (0.28-1.10)	0.52 (0.19-1.45)
Social welfare	79 (23.5%)	65 (17.5%)	15 (20.8%)	0.68 (0.35-1.32)	0.55 (0.21-1.47)
Partner, family members *(Ref.)*	22 (6.5%)	26 (7.0%)	8 (11.1%)		
Partnership[e]					
No or temporary partnership	141 (43.3%)	134 (38.7%)	34 (50.7%)	0.80 (0.58-1.12)	1.25 (0.71-2.20)
Stable, living apart	44 (13.5%)	43 (12.4%)	7 (10.4%)	0.86 (0.53-1.39)	0.86 (0.35-2.12)
Stable, living together *(Ref.)*	141 (43.3%)	169 (48.8%)	26 (38.8%)		
Children living in the household[f]					
No	267 (85.9%)	284 (84.8%)	60 (88.2%)	0.89 (0.57-1.39)	1.20 (0.53-2.69)
Yes *(Ref.)*	44 (14.1%)	51 (15.2%)	8 (11.8%)		
Self-rated general health [g]					
Excellent/very good	118 (33.9%)	117 (31.4%)	15 (20.8%)	0.85 (0.56-1.29)	0.37 (0.18-0.75)**
Good	159 (45.7%)	175 (46.9%)	32 (44.4%)	0.96 (0.65-1.41)	0.58 (0.32-1.05)

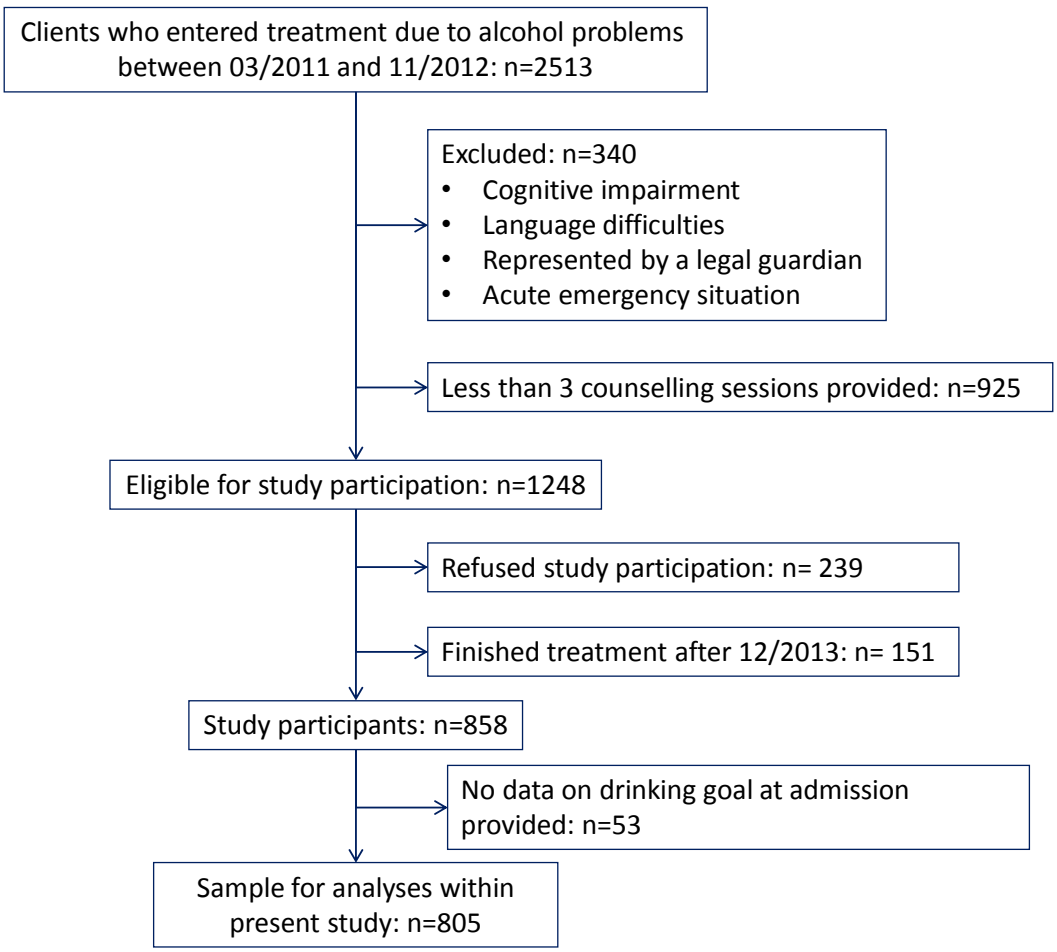
Less well/ poor *(Ref.)*	71 (20.4%)	81 (21.7%)	25 (34.7%)		
Life satisfaction (10-40)[h], *M (SD)*	27.8 (6.1)	27.8 (6.1)	25.8 (6.7)	1.00 (0.97-1.02)	0.96 (0.92-1.00)*
Alcohol use (AUDIT-C)[i], *M (SD)*	5.1(4.7)	7.4 (3.1)	7.0 (3.7)		
At-risk alcohol use	174 (50.3%)	311 (83.6%)	54 (77.1%)	5.48 (3.83-7.82)**	3.14 (1.71-5.78)**
Not-at-risk alcohol use *(Ref.)*	172 (49.7%)	61 (16.4%)	16 (22.9%)		
Alcohol abstinence, previous 30 days[j]					
Yes	166 (49.7%)	28 (7.6%)	13 (18.1%)	0.08 (0.05-0.12)**	0.23 (0.12-0.44)**
No *(Ref.)*	168 (50.3%)	340 (92.4%)	59 (81.9%)		
Substance use except of alcohol[k]					
Yes	277 (79.1%)	303 (81.0%)	63 (88.7%)	1.12 (0.77-1.61)	2.13 (0.97-4.66)
No *(Ref.)*	73 (20.9%)	71 (19.0%)	8 (11.3%)		
Psychotherapeutic/psychiatric treatment in previous 6 months[l]					
Yes	88 (25.5%)	65 (17.7%)	25 (35.2%)	0.62 (0.43-0.89)*	1.56 (0.91-2.70)
No *(Ref.)*	257 (74.5%)	303 (82.3%)	46 (64.8%)		
Admission					
First admission	223 (63.7%)	289 (77.1%)	57 (79.2%)	1.92 (1.37-2.70)**	2.39 (1.25-4.59)**
Readmission *(Ref.)*	127 (36.3%)	86 (22.9%)	15 (20.8%)		
Treatment assignment[m]					
Partner, family, friends	37 (11.0%)	52 (14.2%)	5 (7.2%)	1.22 (0.73-2.02)	0.43 (0.15-1.23)
Health institution	114 (33.8%)	88 (24.0%)	24 (34.8%)	0.56 (0.39-0.82)**	0.75 (0.41-1.36)
Social service	12 (3.6%)	23 (6.3%)	1 (1.4%)	1.36 (0.65-2.85)	0.28 (0.03-2.22)
Justice	53 (15.7%)	36 (9.8%)	3 (4.3%)	0.48 (0.29-0.80)**	0.21 (0.06-0.74)*
Employer, teacher	11 (3.3%)	17 (4.6%)	4 (5.8%)	1.21 (0.54-2.70)	1.27 (0.38-4.34)
Own initiative *(Ref.)*	110 (32.6%)	150 (41.0%)	32 (46.4%)		
Aftercare following alcohol withdrawal treatment[n]					
No	259 (75.3%)	339 (91.6%)	59 (84.3%)	3.88 (2.44-6.18)**	2.17 (1.05-4.48)*
Yes *(Ref.)*	85 (24.7%)	31 (8.4%)	11 (15.7%)		

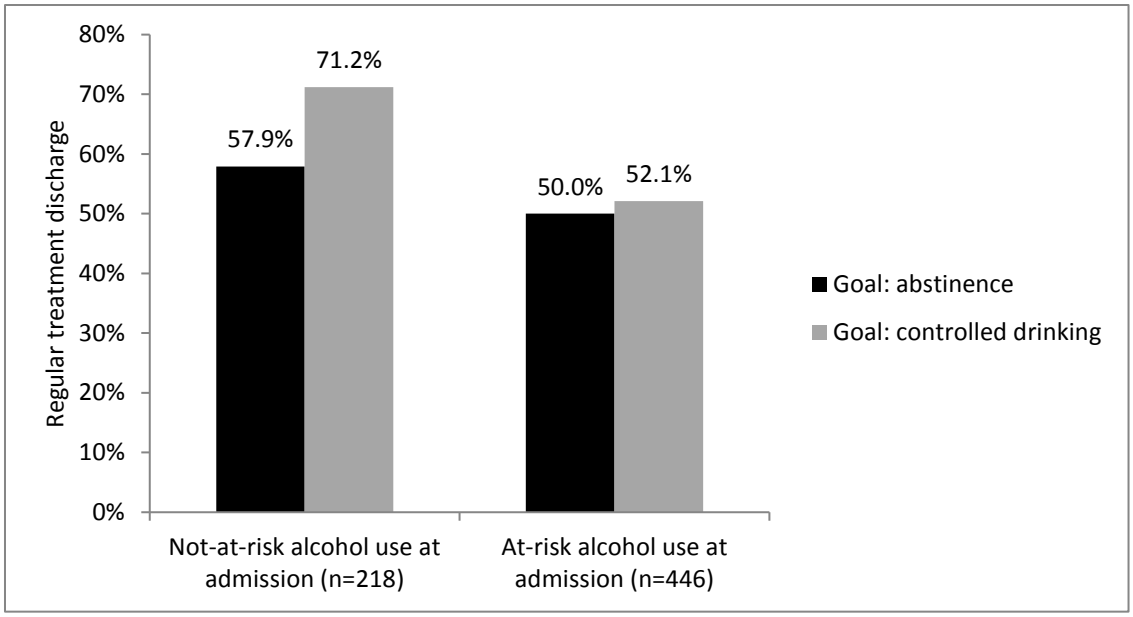
Notes: OR=Odds Ratio; 95%-CI=95%-Confidence Interval; Ref=Reference category; *p<.05; **p<.01. Missing: [a]n=10, [b]n=7, [c]n=156, [d]n=17, [e]n=58, [f]n=83, [g]n=4, [h]n=3, [i]n=9, [j]n=23, [k]n=2, [l]n=13, [m]n=25, [n]n=13.

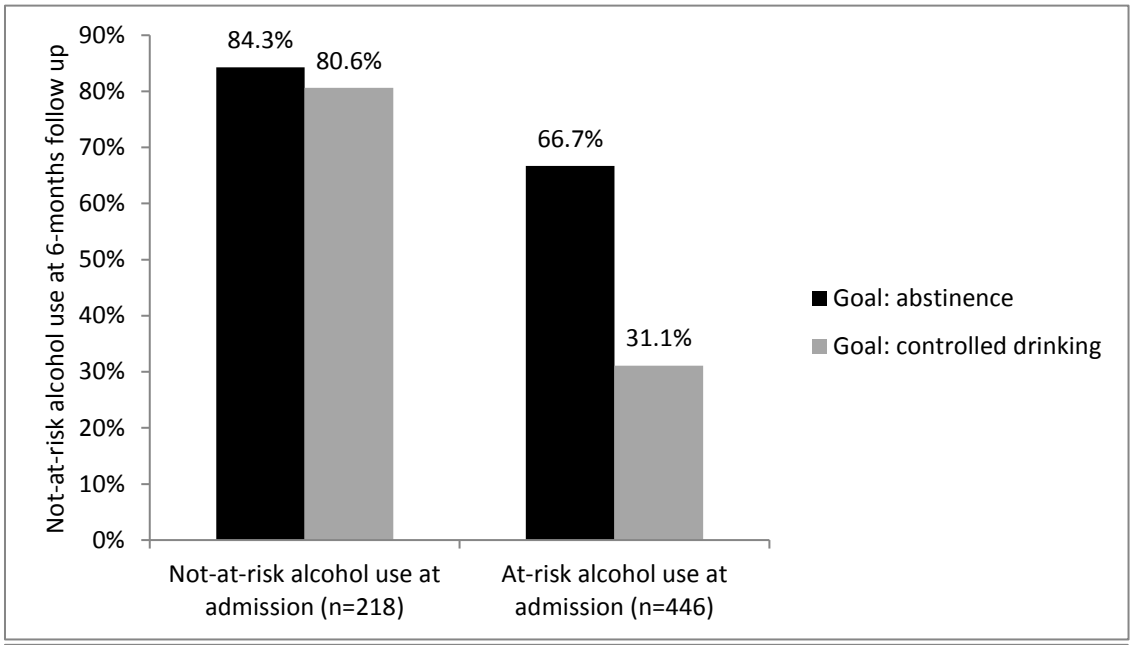
Figure captions

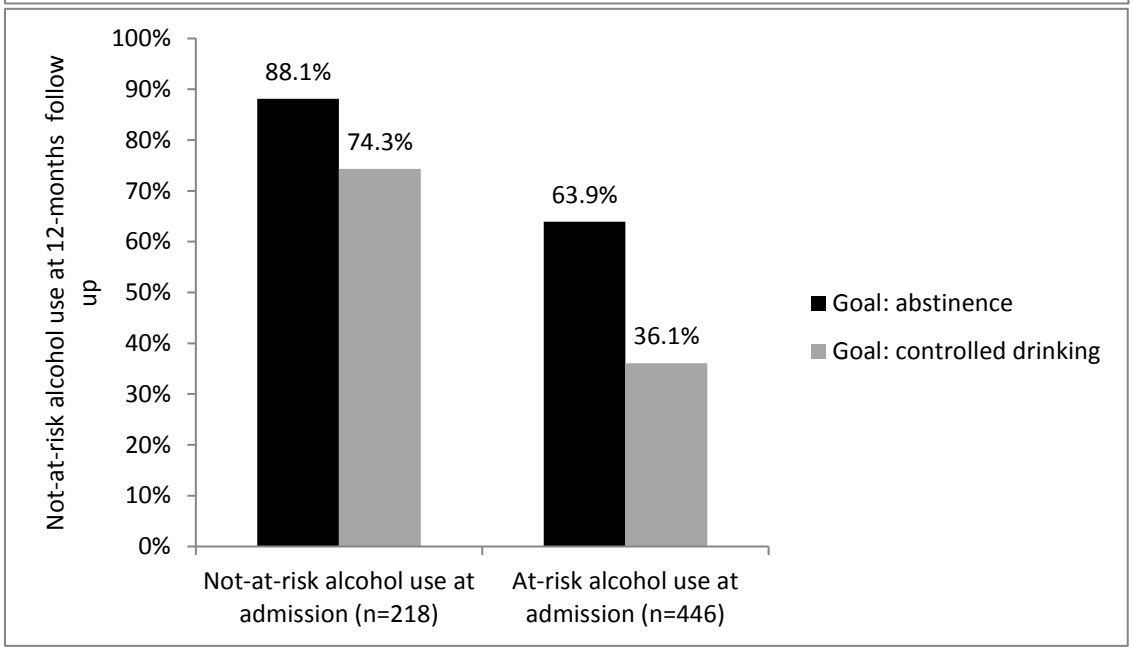
Figure 1: Flow of study participants

Figure 2: Percentages of clients with regular treatment discharge and positive treatment outcomes by drinking goal and alcohol use at admission. Raw percentages, not controlling for potential covariates.


Clients who entered treatment due to alcohol problems between 03/2011 and 11/2012: n=2513
Excluded: n=340
• Cognitive impairment
• Language difficulties
• Represented by a legal guardian
• Acute emergency situation
Less than 3 counselling sessions provided: n=925
Eligible for study participation: n=1248
Refused study participation: n= 239
Finished treatment after 12/2013: n= 151
Study participants: n=858
No data on drinking goal at admission provided: n=53
Sample for analyses within present study: n=805


80%
70%
60%
50%
40%
30%
20%
10%
0%
Regular treatment discharge
57.9%
71.2%
50.0%
52.1%
Not-at-risk alcohol use at admission (n=218)
At-risk alcohol use at admission (n=446)
Goal: abstinence
Goal: controlled drinking


90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Not-at-risk alcohol use at 6-months follow up
84.3%
80.6%
66.7%
31.1%
Not-at-risk alcohol use at admission (n=218)
At-risk alcohol use at admission (n=446)
Goal: abstinence
Goal: controlled drinking


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Not-at-risk alcohol use at 12-months follow up
88.1%
74.3%
63.9%
36.1%
Not-at-risk alcohol use at admission (n=218)
At-risk alcohol use at admission (n=446)
Goal: abstinence
Goal: controlled drinking